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IS 11829 (1986): Miniature Hand Hacksaw Blades [PGD 32: Cutting tools]

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IS : 11829 - 1986

(Reaffirmed 2001)

Indian Standard

SPECIFICATION FOR MINIATURE HAND HACKSAW BLADES

Small Tools Sectional Committee, EDC 45; Saw and Saw Blades Subcommittee, EDC 45 : 6 [Ref : Doc : EDC : 45 (4103)]

1. Scope — Covers the dimensions, requirements and tests of miniature hand hacksaw blades.

2. Terminology

2.1 *Elements* — (*see* Fig. 1).

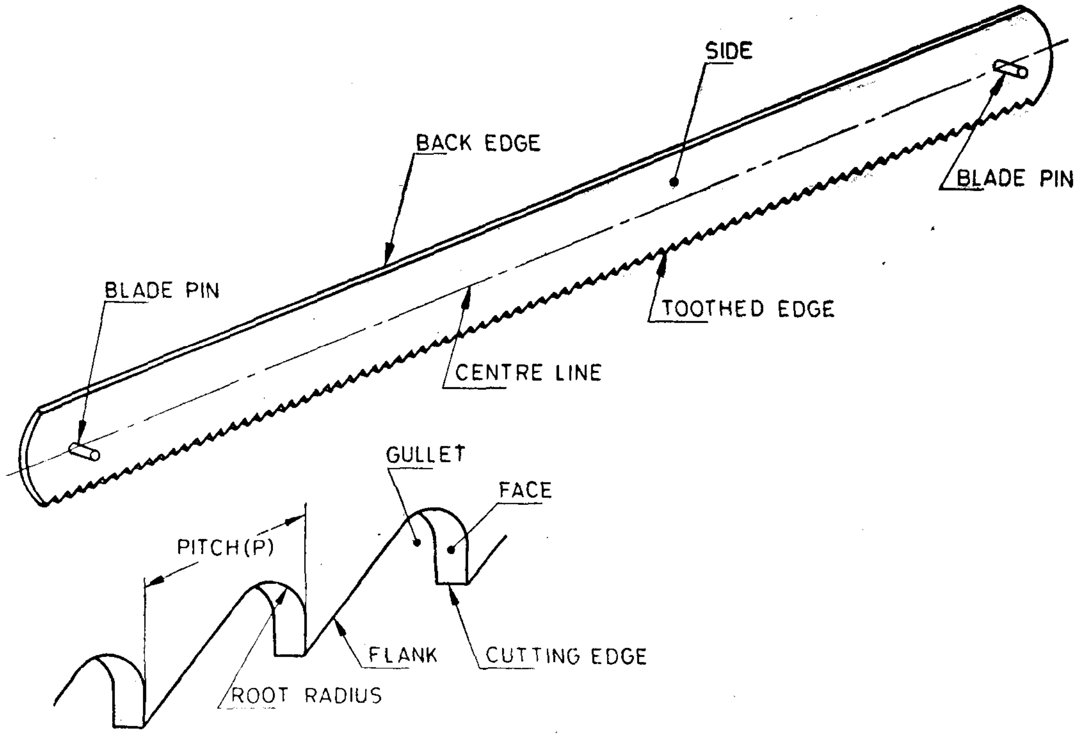

FIG. 1 ELEMENTS OF MINIATURE HAND HACKSAW BLADES

2.1.1 *Centre line* — The longitudinal line that passes through the centre of the blade pins.

2.1.2 *Blade pin* — The pin at each end of the blade by means of which the blade is held and tensioned in use.

2.1.3 *Teeth* — The serrations formed across the thickness of the blade to provide cutting edges.

2.1.4 *Toothed edge* — The longitudinal edge along which the teeth have been formed.

2.1.5 *Cutting edge* — The transverse edge of each tooth.

2.1.6 *Back edge* — The longitudinal edge opposite and parallel to the tooth edge.

2.1.7 *Face* — The surface of the tooth adjacent to the tooth cutting edge on which the chip implinges as it is served from the work.

Adopted 7 July 1986

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2.1.8 *Flank* — The surface behind the tooth cutting edge that extends to the root radius.

2.1.9 *Root radius* — The radius connecting the face of one tooth and the flank of the preceding one.

2.1.10 *Side* — One of the flat surfaces between the toothed edge and the back edge.

2.1.11 *Gullet* — The space bounded by the figure, root radius and flank of a tooth that permits chip removal.

2.2 *Wavy Set* — The wave form projection of groups of teeth from the side of the blade (*see* Fig. 2).

2.2.1 *Regular wave* — The wave on full blade consisting of number of wavy sets.

2.3 *Linear Dimensions*

2.3.1 *Blade length* — The dimension between the centre of the blade pins, measured along the centre line.

2.3.2 *Overall length* — The dimension between the ends of the blade, measured along the centre line.

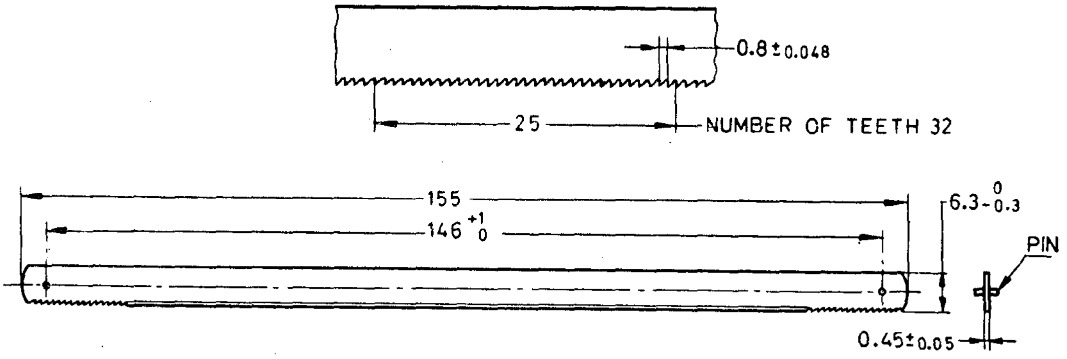
2.3.3 *Width* — The dimension between the toothed edge and the back edge.

2.3.4 *Thickness* — The dimension between the two sides of the blade.

2.3.5 *Pitch* (*P*) — The distance between adjacent tooth cutting edges, measure in millimetre.

3. Dimensions

3.1 *Blade* — Various dimensions of blade are shown in Fig. 2.



All dimensions in millimetres.

FIG. 2 DIMENSIONS FOR BLADE

3.2 *Blade Pin* — Dimensions of blade pin shall be as follows :

Diameter — 1·40 ± 0·25 mm
Length — 4·0 ± 2·0 mm

4. Tolerance on Edge Straightness

4.1 The tooth edge of the blade shall lie between two straight lines 1 mm apart, which are parallel to the centre line.

5. Material

5.1 Blade shall be low alloy steel.

Note — Unless otherwise specified, the low alloy steel shall be of designation 120Cr35 or 110Cr W2 according to IS : 7226-1974 'Specification for cold rolled medium, high carbon and low alloy steel strip for general engineering purposes' or equivalent in which case the major constituent shall be specified by the manufacturer.

5.2 Pin shall be made from material 50T8 in accordance with IS : 3749-1978 'Specification for tool and die steel for cold work'.

6. Heat Treatment and Hardness

6.1 Miniature hacksaw blades shall be heat treated such that toothed edge shall be harder than the body below the gullets of the teeth.

6.2 The minimum hardness at the point of the tooth shall be not less than 760 HV.

7. Manufacture, Workmanship and Finish

7.1 Blades shall be manufactured straight true to shape and size. The teeth shall be cut regularly and cleanly along one edge of the blade. To provide cutting clearance, the teeth shall be in the form of a regular wave and shall protrude by 0·065 mm on each side of blade (*see* Fig. 3.).

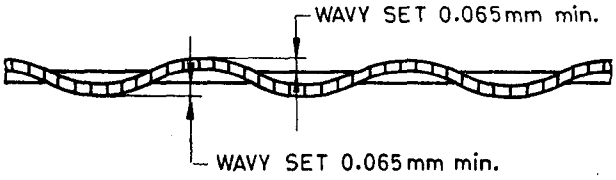


FIG. 3 REGULAR WAVE

7.1.1 The blade pin centres shall be not less than 2 mm from any edge. These shall be equidistant from each blade end and tooth cutting edge. The protrusions of the blade pin on each side of the blade shall be not less than 0·75 mm and the difference between the protrusions on each side shall be not more than 1·5 mm. The centre line of any blade pin shall be not more than 20° from the perpendicular in relative to the sides of the blade.

7.2 The blades shall be of uniform thickness, free from burrs, rust, scales and other defects.

7.3 The pin shall be rigidly fitted to the blade.

8. Designation

8.1 Miniature hand hacksaw blade conforming to this specification, shall be designated as:

Miniature Hand Hacksaw Blade 146 x 0·8 IS : 11829

9. Sampling

9.1 Unless otherwise agreed between the manufacturer and the purchaser, the sampling plan and criteria for conformity shall be followed as given in IS : 2594-1977 'Specification for hacksaw blades (*first revision*)'.

10. Tests

10.1 *Cutting Test* — Miniature hacksaw blade shall be fitted with a hacksaw frame conforming to IS : 11828-1987 'Specification for miniature hand hacksaw frame'. It shall be capable of cutting off, by hand, five sections of 6·5 mm diameter steel bars in less than 700 total cutting strokes. The test material shall be untreated high carbon bright steel (silver steel) with the following composition:

Element	*Percentage*
Carbon	1·1 to 1·2
Silicon	0·1 to 0·25
Sulphur	0·035 *Max*
Phosphorus	0·035 *Max*
Manganese	0·3 to 0·4
Chromium	0·4 to 0·5

10.2 *Bend Test* — Each sample blade shall be capable of being bent as shown in Fig. 4 around the circumference of a test bar 20 mm in diameter without breaking.

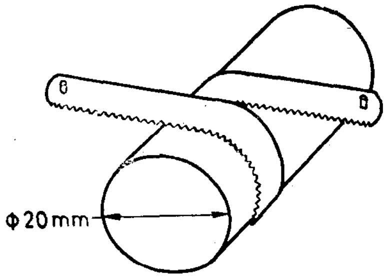


FIG. 4 BEND TEST

11. Preservation and Packing — The blade shall be coated with a suitable preservative or paint. Each wrapped packet shall contain five or ten blades and a suitable number such packets shall be packed in a suitable carton.

12. Marking — Each blade shall be marked with manufacturer's name, initials or registered trade-mark and year of manufacture.

12.1 *Certification Marking* — Details available with the Bureau of Indian Standards.

EXPLANATORY NOTE

These blades are used with the hacksaw conforming to IS : 11828-1987 are utilized for cutting light meaterials, non-ferrous materials, plastics, aluminium extended pipes, conduits, etc.

While preparing this specification, considerable assistance has been derived from BS 6271 : 1982 'Specification for miniature hacksaw blades' issued by British Standards Institution (BSI).

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